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Dairy Herd Improvement Letter

Vol. 59, No. 2

NATIONAL COOPERATIVE
DAIRY HERD IMPROVEMENT
PROGRAM
A dairy recordkeeping plan
for every herd

May 1983

- Counts of 305-Day Lactation Records Excluded from Genetic Evaluations for 1982

letter

- State and National Standardized Lactation Averages by Breed for Cows on Official Test, Calving in 1980

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Dairy Herd Improvement Letter

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COUNTS OF 305-DAY LACTATION RECORDS EXCLUDED FROM GENETIC EVALUATIONS FOR 1982

100 By George R. Wiggans and Gerald J. King[1]

Some lactation records for cows enrolled in production testing plans of the National Cooperative Dairy Herd Improvement Program are not included in computations of genetic evaluations. Only records from official plans, within edit limits, and with sire identification are used.

Table 1 gives the number of 305-day records excluded from the July 1982 and January 1983 Sire Summaries by State. Data for these two Summaries represent approximately 1 calendar year's data. Completed or terminated records of fewer than 305 days are considered 305-day records. The number of records received from a State may have exceeded the number of cows on test in that State because (1) a record for the same lactation was submitted more than once because of corrections, (2) a cow completed two 305-day records in one 12-month period, or (3) a cow's ownership changed. The number of official 305-day records excluded after comparison with previously submitted records is included in tables 1 and 2 under the column heading "Conflict." This count was obtained by selecting current 305-day records from the file of excluded records.

About 25 percent of 305-day lactation records were excluded from genetic evaluations because they were from nonofficial plans, the same as for 1981.[2] All but 6 States--Delaware, Hawaii, Nebraska, New Jersey, New Mexico, and Rhode Island--had an increase in percentage of records that were available for genetic evaluations. The decreases for the six States ranged from 0.1 to 1.4 percent. Five States--Georgia, Iowa, Louisiana, Nevada, and South Carolina--increased proportion of records used by over 5.0 percent.

Table 2 summarizes the data for the 10 States in table 1 with the most official records. The number of errors varied considerably among individual States. Of the 10 States with the most official records, 4 had less than 40.0 percent and 1 had more than 60.0 percent of their records excluded. Most States had little change from 1981. The national average was 49.0 percent excluded, down slightly from 50.7 percent for 1981.

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[1] Research geneticist (animal) and dairy husbandman, respectively, Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Wiggans, G. R., and King, G. J. Counts of 305-day lactation records excluded from genetic evaluations, 1981. Information distributed on February 3, 1982, to State extension dairy specialists advising on the National Cooperative Dairy Herd Improvement Program. 1982.

Among official records, 3.1 percent were unusable because of termination code 9, down from 3.8 percent for 1981. (Termination code 9 indicates that records should not be used for genetic evaluations because production information is not reliable.) Nearly 42 percent of official records had missing sire identification, which was the primary reason for exclusion of official records. Only 0.4 percent of official records were excluded because of errors. Counts for records with missing sire identification or errors cannot be compared with counts for 1981 because of a change in editing procedures in 1981. About 3.7 percent of official records were excluded because of conflicts, down from 4.0 percent for 1981.

Summary

Official 305-day records provide the basic information for the genetic improvement program. Only properly identified records can contribute to genetic evaluations. The accuracy of genetic evaluations of bulls could be improved and indexes computed for more cows if more of the records received had complete animal identification.

When a record is not used in computing genetic evaluations for a reason other than conflict, such as missing sire identification, only that record is excluded. However, when a record is compared with other records for the same cow and a conflict, such as differing birth date or parent identification, is detected, **all** records for that cow are excluded and existing information thus is eliminated. Careful review of records returned because of conflict may enable correction of errors and restoration of information.

Table 1.--Disposition of 305-day records by State, 1982

State[1]	Records			Official records excluded because of--				Official 305-day records available for Sire Summary	
	Total	Nonofficial[2]	Official	Termination code 9[3][4]	Zero sire No.	Error[5]	Conflict[6]		
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Percent*
Alabama	25,604	940	24,664	430	14,188	4	926	9,116	37.0
Alaska	241	170	71	1	0	0	0	70	98.6
Arizona	52,891	894	51,997	697	36,165	336	1,181	13,618	26.2
Arkansas	18,317	2,418	15,899	2,215	7,083	10	727	5,864	36.9
California	567,306	52,945	514,361	17,234	285,593	2,489	15,556	193,489	37.6
Colorado	35,685	3,174	32,511	1,115	16,075	464	1,388	13,469	41.4
Connecticut	29,238	5,067	24,171	0	6,604	30	882	16,655	68.9
Delaware	4,897	550	4,347	0	1,456	5	198	2,688	61.8
Florida	67,173	46,271	20,902	576	12,474	49	1,011	6,792	32.5
Georgia	58,789	18,469	40,320	812	22,104	20	1,529	15,855	39.3
Hawaii	7,189	3,422	3,767	42	2,339	10	78	1,298	34.5
Idaho	58,777	6,824	51,953	1,219	31,193	1,359	1,775	16,407	31.6
Illinois	93,286	11,849	81,437	5,920	29,728	242	3,221	42,326	52.0
Indiana	73,598	13,303	60,295	957	19,523	92	2,877	36,846	61.1
Iowa	154,809	66,546	88,263	7,355	29,929	247	3,591	47,141	53.4
Kansas	64,068	5,719	58,349	3,930	21,590	111	2,436	30,282	51.9
Kentucky	40,840	6,622	34,218	590	17,031	24	1,299	15,274	44.6
Louisiana	32,476	1,968	30,508	555	15,378	36	2,091	12,448	40.8
Maine	28,884	4,950	23,934	0	4,487	43	870	18,534	77.4
Maryland	59,223	2,799	56,424	781	15,664	393	2,612	36,974	65.5
Massachusetts	21,409	2,198	19,211	0	3,529	42	680	14,960	77.9
Michigan	184,312	52,763	131,549	662	61,705	135	6,084	62,963	47.9
Minnesota	379,523	127,005	252,518	15,109	85,629	68	7,574	144,138	57.1
Mississippi	28,113	692	27,421	430	16,031	14	989	9,957	36.3
Missouri	80,344	11,384	68,960	7,778	29,205	83	2,559	29,335	42.5
Montana	11,002	1,413	9,589	66	6,072	139	481	2,831	29.5
Nebraska	44,204	4,712	39,492	3,719	18,613	26	1,219	15,915	40.3
Nevada	11,586	492	11,094	102	7,360	376	173	3,083	27.8
New Hampshire	15,960	2,639	13,321	0	2,378	9	495	10,439	78.4
New Jersey	17,155	3,068	14,087	0	3,481	22	434	10,150	72.1
New Mexico	34,890	2,187	32,703	554	21,425	100	781	9,843	30.1
New York	439,102	221,376	217,726	0	44,408	276	7,464	165,578	76.0
North Carolina	77,394	5,603	71,791	1,150	32,426	83	4,115	34,017	47.4
North Dakota	15,445	2,210	13,235	2,038	6,874	12	382	3,929	29.7
Ohio	137,673	34,979	102,694	1,272	31,140	913	4,418	64,951	63.2
Oklahoma	32,133	2,359	29,774	3,294	14,013	23	1,199	11,245	37.8
Oregon	58,942	5,398	53,544	3,681	23,974	849	2,820	22,220	41.5
Pennsylvania	325,488	100,490	224,998	2,110	50,884	2,456	7,502	162,046	72.0
Puerto Rico	29,298	285	29,013	908	25,030	71	877	2,127	7.3
Rhode Island	1,363	42	1,321	0	370	0	43	908	68.7
South Carolina	33,109	1,482	31,627	524	13,532	26	1,157	16,388	51.8
South Dakota	43,057	21,739	21,318	2,383	10,116	23	670	8,126	38.1
Tennessee	62,254	514	61,740	647	36,768	15	2,056	22,254	36.0
Texas	91,392	6,881	84,511	1,869	51,756	54	2,831	28,001	33.1
Utah	45,165	3,003	42,162	884	23,257	304	1,534	16,183	38.4
Vermont	81,512	20,571	60,941	1	16,358	99	2,111	42,372	69.5
Virginia	95,887	2,351	93,536	1,523	27,513	91	5,252	59,157	63.2
Washington	104,398	13,288	91,110	1,389	48,393	730	3,330	37,268	40.9
West Virginia	14,370	1,140	13,230	0	3,891	5	496	8,838	66.8
Wisconsin	629,313	266,962	362,351	11,357	132,364	1,696	13,783	203,151	56.1
Wyoming	2,714	49	2,665	13	1,371	173	135	973	36.5
United States	4,621,798	1,174,175	3,447,623	107,892	1,438,470	14,877	127,892	1,758,492	51.0

[1] Includes Puerto Rico.

[2] Includes records with invalid identification correction codes.

[3] Includes a few records unusable for reasons other than termination code 9; e.g., test herd, invalid termination code, or missing or unreasonable birth or calving date.

[4] Values also affected by procedures of individual dairy records processing centers. For example, the New York center submits very few records with termination code 9. In contrast, the Iowa center submits many such records.

[5] Includes records with invalid or blank animal identification or blank production information.

[6] Includes records that conflict with previously submitted records or pedigree data in the Animal Improvement Programs Laboratory file; also includes records having production values outside U.S. Department of Agriculture limits.

Table 2.--Official 305-day records and proportion excluded for 10 States with most official records and for United States, 1982

State	Official records	Official records excluded because of-- Termination code 9	Zero sire No.	Error	Conflict	Total records excluded
	Number	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
California---------	514,361	3.4	55.5	0.5	3.0	62.4
Wisconsin ---------	362,351	3.1	36.5	.5	3.8	43.9
Minnesota---------	252,518	6.0	33.9	.0	3.0	42.9
Pennsylvania------	224,998	.9	22.6	1.1	3.3	28.0
New York---------	217,726	.0	20.4	.1	3.4	24.0
Michigan----------	131,549	.5	46.9	.1	4.6	52.1
Ohio---------------	102,694	1.2	30.3	.9	4.3	36.8
Virginia -----------	93,536	1.6	29.4	.1	5.6	36.8
Washington--------	91,110	1.5	53.1	.8	3.7	59.1
Iowa---------------	88,263	8.3	33.9	.3	4.1	46.6
United States-----	3,447,623	3.1	41.7	.4	3.7	49.0

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STATE AND NATIONAL STANDARDIZED LACTATION AVERAGES BY BREED FOR COWS ON OFFICIAL TEST, CALVING IN 1980 [2] ,

100 By Rex L. Powell[1]

Dairy records processing centers provide lactation records to USDA for research that includes genetic evaluations. Records only from cows on official test are used in genetic evaluations. Nearly half of the official records are not used. Most of them are from grade cows and are not usable because of missing sire identification and failure to pass other USDA edits.[2] [3] Data on records with missing sire identification are presented later in this article.[4] The number and average standardized yields of lactation records initiated in 1980 and eligible to contribute to genetic evaluations[5] are reported by State in table 1 for Ayrshire, Guernsey, and Holstein cows and in table 2 for Jersey, Brown Swiss, and Milking Shorthorn cows. Records were standardized for age and month of calving[6] and times milked per day.[7] Incomplete records were projected to 305 days.[8] Thus, the averages presented are on a 305-day, two-times-a-day, mature-equivalent basis. Fat percentages were computed from the average standardized milk and fat yields.

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[1] Research geneticist (animal), Animal Improvement Programs Laboratory, Animal Science Institute, Beltsville Agricultural Research Center, Beltsville, Md. 20705.

[2] Wiggans, G. R., and King, G. J. Counts of 305-day lactation records excluded from genetic evaluations for 1982. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 59(2), pp. 1-4. 1983.

[3] U.S. Department of Agriculture. Editing of lactation records used in USDA-DHIA genetic evaluations of sires and cows. U.S. Dept. Agr. Dairy Herd Impr. Ltr. ARS-44-222, 46(6), 32 pp. 1970.

[4] Data on records with missing sire identification were prepared by George R. Wiggans and Gerald J. King.

[5] Because some lactation data included here may have been from cows without herdmate records, their records were not used in genetic evaluations.

[6] Norman, H. D., Miller, P. D., McDaniel, B. T., and others. USDA-DHIA factors for standardizing 305-day lactation records for age and month of calving. U.S. Dept. Agr. ARS-NE-40, 91 pp. 1974.

[7] Wiggans, G. R., and Grossman, M. Adjusting records from three-times-a-day to two-times-a-day milking basis. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(4), pp. 7-8. 1980.

[8] Wiggans, G. R., and Powell, R. L. Projection factors for milk and fat lactation records. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 56(1), 15 pp. 1980.

Tables 1 and 2 were compared with corresponding data from previous years, and changes are given in table 3. Numbers of records increased for all breeds except Guernsey, with an overall increase of 8 percent from 1979. The Brown Swiss records do not include an estimated 1,000 records that were temporarily unavailable because of changes in pedigree information. Average milk and fat yields per cow were higher than 1979 averages for all breeds, and increases were larger than the average changes since 1971.[9] Fat percentage decreased from 1979 for Guernseys, Holsteins, Jerseys, and Brown Swiss; remained the same for Ayrshires; and increased slightly for Milking Shorthorns. Since 1971, fat percentage has decreased for all breeds, but most noticeably for Jerseys. Changes for 1979-80 compared with the average annual changes for 1971-80 show that the former were more positive for number of records and yields but were mixed for fat percentage. Changes in data for particular State and breed combinations may be studied by comparing tables 1 and 2 with tables in the 1979 report[10] and in corresponding publications for previous years.

Information for cows of the Red and White breed are not included in the tables because of the small number of cows. Nationally, the 1,001 Red and White cows averaged 15,816 pounds of milk, 3.62 percent fat, and 573 pounds of fat. The averages for 924 cows in 1979 were 15,278 pounds of milk, 3.62 percent fat, and 554 pounds of fat.

Data corresponding to those in tables 1 and 2 but for records of cows with missing sire identification are in tables 4 and 5. The 1,125 Red and White cows with missing sire identification averaged 15,072 pounds of milk, 3.60 percent fat, and 543 pounds of fat. Average yields for cows with missing sire identification were lower than those for cows with identified sires for all breeds except Milking Shorthorn, for which records were few. The largest difference between average yields was 1,553 pounds of milk and 60 pounds of fat for Holsteins. The records with missing sire identification were about equal in number to those with sire identification for Holsteins and Red and Whites; for other breeds, the records with missing sire identification ranged from 6 to 27 percent of those with sire identification.

Interpretation of changes in average yield should be made in view of the many factors that can affect it. Although genetic change is expected to have a positive effect on yield, the feed availability and cost, milk and beef prices, and characteristics of herds entering and leaving official testing programs can affect the averages in either direction.

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[9] The earliest year for which averages computed on the same basis were available is 1971.

[10] Powell, R. L. State and national standardized lactation averages by breed for cows on official test, calving in 1979. U.S. Dept. Agr. Dairy Herd Impr. Ltr. 58(1), pp. 1-5. 1982.

Table 1.--Number of records and State and national standardized lactation averages for Ayrshire, Guernsey, and Holstein cows on official test, calving in 1980, and with identified sires[1]

State[2]	Ayrshire				Guernsey				Holstein			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*
Alabama	53	12,132	3.63	440	145	10,518	4.35	458	5,620	15,762	3.54	557
Alaska	---	---	---	---	---	---	---	---	59	15,453	3.82	590
Arizona	1	17,050	3.45	589	521	11,720	4.58	537	8,344	17,802	3.51	625
Arkansas	9	12,548	3.79	475	221	10,354	4.39	454	3,620	15,686	3.38	531
California	203	14,570	3.92	571	2,591	12,875	4.59	590	153,938	18,992	3.60	683
Colorado	4	11,935	3.69	440	237	10,456	4.54	475	10,230	16,589	3.51	582
Connecticut	511	12,392	4.03	499	591	11,862	4.57	542	14,060	17,130	3.62	620
Delaware	121	12,628	4.21	532	13	12,705	5.02	637	2,430	17,680	3.57	631
Florida	177	11,100	3.46	383	388	10,117	4.17	422	3,354	16,033	3.38	543
Georgia	132	13,066	3.69	482	764	11,957	4.56	545	10,208	15,597	3.50	546
Hawaii	---	---	---	---	---	---	---	---	1,537	15,942	3.01	479
Idaho	48	11,855	3.72	441	393	11,078	4.64	513	12,143	16,971	3.46	588
Illinois	467	12,381	3.88	480	1,331	10,808	4.67	504	34,176	16,138	3.73	602
Indiana	351	12,918	3.96	512	3,093	11,450	4.70	538	26,185	16,691	3.66	611
Iowa	1,408	12,159	3.87	470	2,015	10,840	4.72	512	34,395	15,939	3.66	583
Kansas	470	12,008	3.73	448	522	10,846	4.50	489	25,939	15,856	3.53	559
Kentucky	227	11,276	3.76	424	298	10,975	4.61	506	10,572	15,726	3.59	564
Louisiana	109	10,365	3.59	372	1094	9,984	4.26	425	7,237	14,971	3.25	487
Maine	520	12,795	3.93	503	249	11,908	4.68	557	15,115	17,456	3.52	615
Maryland	583	11,418	3.95	451	1,061	10,862	4.65	505	31,413	16,415	3.65	598
Massachusetts	549	12,304	3.89	478	329	12,139	4.51	548	12,267	16,975	3.58	608
Michigan	171	12,138	3.67	445	1,853	11,410	4.66	532	53,677	17,200	3.62	622
Minnesota	1,143	12,221	3.86	471	4,289	10,840	4.63	502	119,237	16,276	3.59	585
Mississippi	175	11,347	3.59	407	257	10,934	4.40	481	5,835	15,629	3.43	536
Missouri	97	12,265	3.75	459	1,669	10,661	4.53	482	21,626	16,134	3.55	572
Montana	165	13,355	3.73	498	66	12,936	4.82	624	1,877	16,244	3.53	573
Nebraska	160	10,710	3.92	420	509	10,538	4.58	483	12,594	15,567	3.60	561
Nevada	---	---	---	---	---	---	---	---	1,764	17,891	3.31	592
New Hampshire	538	13,869	3.89	540	142	11,261	4.45	502	7,866	17,350	3.61	626
New Jersey	31	12,373	3.85	477	138	10,911	4.63	505	9,404	17435	3.64	635
New Mexico	180	15,123	3.78	571	517	12,872	4.32	556	8,277	17,743	3.55	630
New York	3,438	13,081	3.92	512	2,108	11,798	4.54	535	145,485	17,287	3.62	625
North Carolina	240	13,864	3.72	516	485	10,977	4.60	505	28,442	16,750	3.47	581
North Dakota	---	---	---	---	17	8,725	4.50	392	3,226	14,950	3.47	519
Ohio	1,245	12,559	3.88	487	2,662	11,462	4.70	538	48,967	17,184	3.68	632
Oklahoma	280	13,172	3.90	514	398	11,555	4.52	523	7,287	16,550	3.58	593
Oregon	267	12,664	3.90	494	1,065	11,633	4.59	535	12,758	17,642	3.56	627
Pennsylvania	1,410	13,500	4.01	541	4,931	11,552	4.70	543	139,030	17,161	3.70	635
Puerto Rico	---	---	---	---	---	---	---	---	1,967	11,027	3.32	366
Rhode Island	162	12,123	4.16	504	44	7,695	4.59	353	702	16,536	3.67	607
South Carolina	---	---	---	---	1,722	11,902	4.65	553	7,515	16,019	3.57	571
South Dakota	2	12,165	4.41	537	39	11,589	4.91	568	6,261	15,622	3.61	563
Tennessee	110	11,510	3.91	450	629	10,949	4.37	479	14,208	16,692	3.55	592
Texas	22	12,009	3.84	461	417	11,608	4.47	519	15,547	16,938	3.44	582
Utah	4	12,308	4.01	494	7	9,480	4.54	429	13,399	17,520	3.43	600
Vermont	1,581	13,181	3.81	502	501	11,861	4.55	540	31,423	16,991	3.55	603
Virginia	577	12,979	3.64	472	1,708	11,009	4.47	492	51,043	16,454	3.49	574
Washington	400	13,434	3.94	529	2,164	12,241	4.68	573	27,450	18,126	3.48	630
West Virginia	314	11,641	4.00	466	296	9,094	4.48	407	7,629	15,821	3.47	549
Wisconsin	1,147	12,702	3.86	490	6,837	11,539	4.65	536	160,942	17,045	3.69	630
Wyoming	---	---	---	---	24	14,756	4.42	652	765	16,152	3.34	540
United States	19,802	12,724	3.88	493	51,350	11,404	4.61	526	1,389,045	17,049	3.60	614

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 2.--Number of records and State and national standardized lactation averages for Jersey, Brown Swiss, and Milking Shorthorn cows on official test, calving in 1980, and with identified sires[1]

State[2]	Jersey				Brown Swiss				Milking Shorthorn			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*
Alabama	2,442	12,251	4.56	559	151	12,800	3.97	508	11	12,322	4.07	501
Alaska	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	1,069	12,182	4.98	607	848	15,764	3.84	606	58	12,606	3.53	445
Arkansas	746	9,868	4.68	462	133	14,653	3.80	557	58	13,898	3.64	506
California	7,485	12,213	5.05	617	874	15,191	4.09	621	139	14,647	3.56	522
Colorado	248	10,912	4.71	514	511	13,862	4.19	580	---	---	---	---
Connecticut	397	11,000	4.90	539	243	13,531	3.98	538	20	10,272	3.61	371
Delaware	75	10,563	4.79	506	6	16,215	4.33	702	---	---	---	---
Florida	890	10,643	4.43	472	290	12,606	3.73	471	---	---	---	---
Georgia	1,504	10,156	4.74	482	330	13,996	3.77	528	---	---	---	---
Hawaii	---	---	---	---	---	---	---	---	---	---	---	---
Idaho	1,084	10,681	4.83	516	118	13,904	3.94	547	35	12,299	3.63	447
Illinois	1,013	9,661	4.87	470	1,326	12,845	4.08	524	201	11,850	3.60	426
Indiana	1,681	10,440	4.84	505	821	14,647	4.06	595	83	11,436	3.71	425
Iowa	2,336	10,270	4.87	500	2,809	13,417	4.09	549	411	11,296	3.68	416
Kansas	678	10,180	4.63	471	365	13,322	3.87	515	15	11,694	3.26	382
Kentucky	2,142	10,895	4.76	518	279	12,041	3.88	467	21	8,836	3.68	325
Louisiana	2,175	10,016	4.44	445	123	10,549	3.60	380	---	---	---	---
Maine	1,511	12,366	4.76	588	99	13,572	3.79	514	100	10,370	3.55	368
Maryland	589	8,815	4.84	426	296	13,193	4.00	528	41	9,908	3.70	366
Massachusetts	1,174	11,025	4.87	537	59	13,237	3.94	521	37	11,037	3.69	408
Michigan	1,811	10,922	4.97	543	375	13,020	4.00	520	79	13,084	3.61	473
Minnesota	2,500	10,241	4.87	499	1,436	13,634	4.01	547	534	12,597	3.66	460
Mississippi	1,829	10,387	4.52	470	7	10,821	4.00	433	---	---	---	---
Missouri	1,790	10,715	4.68	501	559	13,262	3.94	522	199	10,939	3.74	409
Montana	5	10,000	4.70	470	42	14,484	4.18	605	---	---	---	---
Nebraska	165	9,093	4.70	428	540	13,228	4.08	539	175	8,921	3.71	331
Nevada	441	12,833	4.72	605	1	16,180	2.83	458	---	---	---	---
New Hamphire	1,127	11,173	4.81	538	137	12,161	3.91	476	36	12,043	3.55	428
New Jersey	266	13,646	4.71	643	130	14,124	3.98	562	---	---	---	---
New Mexico	6	10,332	4.36	447	18	11,365	4.07	463	---	---	---	---
New York	4,825	10,956	4.89	536	1,644	14,112	4.01	566	46	11,879	3.72	441
North Carolina	2,111	11,271	4.60	519	263	12,900	3.90	503	---	---	---	---
North Dakota	93	8,944	4.72	423	109	14,307	3.99	570	1	14,430	3.96	572
Ohio	5,317	10,737	5.01	538	1,607	14,550	4.16	605	145	11,799	3.76	443
Oklahoma	725	10,350	4.70	486	394	12,871	3.99	514	231	12,960	3.53	458
Oregon	3,908	11,524	4.93	568	792	13,727	4.01	551	4	15,425	3.53	545
Pennsylvania	4,772	10,986	4.95	544	882	14,055	4.05	570	67	10,167	3.82	388
Puerto Rico	---	---	---	---	21	11,137	3.31	368	---	---	---	---
Rhode Island	4	10,782	4.27	459	2	11,460	3.78	432	---	---	---	---
South Carolina	4,616	11,599	4.74	550	53	10,732	3.65	393	---	---	---	---
South Dakota	124	9,644	4.99	481	352	12,584	4.07	512	100	9,869	3.56	352
Tennessee	4,305	11,121	4.62	514	429	13,996	4.03	564	1	13,480	3.76	507
Texas	3,954	11,016	4.64	512	1,090	14,637	3.96	579	32	13,632	3.62	493
Utah	717	11,50	4.83	553	121	13,319	4.09	545	---	---	---	---
Vermont	6,287	11,248	4.76	536	134	16,128	3.97	641	41	11,380	3.53	401
Virginia	875	11,453	4.67	535	128	13,754	3.87	532	8	13,043	3.51	458
Washington	3,224	12,341	4.98	614	233	14,878	4.06	604	45	15,352	3.39	520
West Virginia	297	11,367	4.49	510	11	12,279	3.90	477	---	---	---	---
Wisconsin	3,177	10,511	4.88	513	3,699	14,052	4.05	569	260	11,915	3.66	436
Wyoming	29	10,406	4.68	488	1	11,120	3.31	368	---	---	---	---
United States	88,539	11,122	4.82	536	24,891	13,854	4.02	557	3,234	11,833	3.64	431

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 3.--Average annual changes for 1971-80 and changes for 1979-80 for number of cows, milk yield, fat percentage, and fat yield by breed

Breed	Change: Average annual, 1971-80	Change: 1979-80
	Records (numbers)	
Ayrshire	+36	+336
Guernsey	-3,038	-229
Holstein	+59,852	+117,049
Jersey	+1,601	+5,375
Brown Swiss	+432	+678
Milking Shorthorn	+67	+218
	Milk (pounds)	
Ayrshire	+141	+232
Guernsey	+130	+173
Holstein	+229	+257
Jersey	+177	+235
Brown Swiss	+116	+178
Milking Shorthorn	+180	+336
	Fat (percent)	
Ayrshire	-.003	.000
Guernsey	-.006	-.020
Holstein	-.003	-.010
Jersey	-.019	-.020
Brown Swiss	-.001	-.010
Milking Shorthorn	-.002	+.010
	Fat (pounds)	
Ayrshire	+5	+9
Guernsey	+5	+7
Holstein	+8	+8
Jersey	+7	+9
Brown Swiss	+5	+9
Milking Shorthorn	+6	+13

Table 4.--Number of records and State and national standardized lactation averages for Ayrshire, Guernsey, and Holstein cows on official test, test, calving in 1980, and with missing sire identification[1]

State[2]	Ayrshire				Guernsey				Holstein			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*
Alabama	8	11,041	3.53	390	121	10,489	4.13	434	14,288	14,214	3.49	496
Alaska	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	3	17,243	3.65	629	1,631	12,109	4.42	535	30,520	16,968	3.55	603
Arkansas	9	7,838	3.31	260	35	9,930	3.98	395	4,643	13,460	3.36	452
California	40	13,600	3.67	499	841	11,895	4.48	533	237,683	17,440	3.62	631
Colorado	11	12,114	3.45	418	17	11,313	4.36	493	10,323	14,993	3.56	534
Connecticut	23	11,031	3.93	433	40	10,860	4.35	472	5,829	15,944	3.62	577
Delaware	8	11,748	3.75	440	2	12,946	4.37	565	1,343	15,752	3.56	561
Florida	51	9,538	2.99	285	73	9,988	4.08	408	8,432	13,879	3.28	455
Georgia	18	11,774	3.57	421	72	10,965	4.32	474	18,761	13,854	3.52	488
Hawaii	---	---	---	---	1	16,769	3.88	651	2,430	14,468	3.02	437
Idaho	6	12,866	3.61	465	64	11,282	4.33	489	22,880	15,406	3.48	537
Illinois	48	10,523	3.83	403	173	9,838	4.45	437	24,364	14,402	3.75	540
Indiana	12	12,297	4.00	492	313	10,319	4.70	485	19,073	15,168	3.67	557
Iowa	138	10,975	3.84	422	441	9,663	4.67	451	28,083	14,155	3.67	519
Kansas	40	13,242	3.52	466	51	10,193	4.20	429	19,045	14,047	3.54	497
Kentucky	35	11,140	3.61	402	43	10,223	4.26	435	15,458	13,298	3.60	479
Louisiana	62	10,256	3.59	368	272	9,825	4.08	401	13,370	13,395	3.24	434
Maine	18	12,618	3.93	496	21	10,637	4.33	460	4,104	15,467	3.50	541
Maryland	53	12,104	3.74	453	71	9,735	4.59	446	13,579	14,612	3.68	537
Massachusetts	14	11,940	3.74	447	6	10,256	4.59	470	3,406	15,707	3.56	560
Michigan	17	11,268	3.74	421	248	10,770	4.58	493	55,475	15,413	3.62	557
Minnesota	125	11,715	3.80	445	739	9,752	4.60	449	73,170	14,534	3.62	526
Mississippi	43	9,717	3.60	350	92	9,618	4.10	394	12,541	13,413	3.46	465
Missouri	80	10,907	3.70	404	203	10,349	4.22	436	23,349	14,005	3.53	494
Montana	---	---	---	---	4	9,181	4.59	421	2,483	15,118	3.49	528
Nebraska	145	10,002	3.87	387	119	8,574	4.40	377	15,256	13,738	3.59	493
Nevada	---	---	---	---	---	---	---	---	5,023	16,568	3.25	538
New Hampshire	10	12,326	3.74	461	9	10,654	4.11	438	2,126	15,850	3.60	571
New Jersey	3	12,591	3.74	470	148	10,350	4.85	502	3,035	15,647	3.63	568
New Mexico	---	---	---	---	34	13,472	4.12	556	14,654	17,158	3.49	598
New York	229	12,128	3.94	477	168	10,507	4.54	477	45,576	15,783	3.60	568
North Carolina	13	12,070	3.84	464	142	10,297	4.46	459	30,754	15,237	3.46	528
North Dakota	1	7,158	3.72	266	13	10,084	4.20	423	4,483	13,258	3.42	453
Ohio	88	12,709	3.83	487	267	10,245	4.60	471	27,664	15,560	3.68	573
Oklahoma	16	10,956	3.61	395	25	9,203	4.26	392	11,259	14,528	3.58	520
Oregon	81	11,994	3.88	465	270	10,669	4.55	486	30,104	16,204	3.61	586
Pennsylvania	90	11,950	3.89	465	416	10,844	4.59	498	43,452	15,310	3.71	569
Puerto Rico	1	7,596	3.91	297	3	10,728	2.78	298	20,955	10,935	2.95	323
Rhode Island	4	10,434	3.59	374	1	9,114	4.61	420	331	13,921	3.66	510
South Carolina	1	12,142	4.03	489	136	11,090	4.43	491	12,278	14,627	3.58	523
South Dakota	15	10,996	3.57	393	8	8,718	4.14	361	7,199	13,930	3.64	508
Tennessee	61	11,535	3.72	429	294	9,880	4.28	423	32,347	14,477	3.60	521
Texas	42	12,377	3.96	490	82	10,637	4.26	453	39,698	14,899	3.45	515
Utah	27	11,440	4.11	471	5	11,646	3.98	463	17,914	16,197	3.41	553
Vermont	137	13,054	3.83	500	54	10,818	4.36	471	14,310	15,460	3.52	544
Virginia	45	11,663	3.70	432	224	9,524	4.30	410	27,069	14,846	3.52	523
Washington	31	13,646	3.87	529	201	11,964	4.37	523	46,095	16,593	3.51	582
West Virginia	12	11,247	3.75	421	28	8,839	4.21	372	4,233	13,993	3.52	492
Wisconsin	190	12,556	3.86	484	1,671	10,834	4.63	502	112,485	15,620	3.67	573
Wyoming	---	---	---	---	---	---	---	---	709	14,576	3.36	490
United States	2,104	11,704	3.79	444	9,892	10,790	4.48	484	1,233,641	15,496	3.58	554

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

Table 5.--Number of records and State and national standardized lactation averages for Jersey, Brown Swiss, and Milking Shorthorn cows on official test, calving in 1980, and with missing sire identification[1]

State[2]	Jersey				Brown Swiss				Milking Shorthorn			
	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat	Records	Milk	Fat	Fat
	Number	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*	*Number*	*Pounds*	*Percent*	*Pounds*
Alabama	536	9,360	4.44	416	261	14,006	3.58	502	---	---	---	---
Alaska	---	---	---	---	---	---	---	---	---	---	---	---
Arizona	481	11,911	4.99	594	87	15,658	3.91	612	3	15,099	3.64	549
Arkansas	89	10,059	4.45	448	82	13,144	3.55	467	16	11,240	3.19	358
California	7,041	11,327	4.92	557	420	15,342	3.97	609	7	16,622	3.85	639
Colorado	43	10,650	4.42	470	76	12,694	3.90	495	5	9,161	3.95	362
Connecticut	28	9,613	4.93	474	12	14,140	4.17	589	1	8,646	3.16	273
Delaware	6	13,036	4.38	571	---	---	---	---	---	---	---	---
Florida	209	9,808	4.17	409	193	11,959	3.62	433	---	---	---	---
Georgia	377	9,548	4.58	437	124	13,675	3.81	521	1	12,874	3.73	480
Hawaii	---	---	---	---	1	8,608	3.30	284	---	---	---	---
Idaho	476	9,647	4.68	451	93	13,707	3.97	544	3	13,075	3.66	478
Illinois	135	9,518	5.01	477	163	11,092	4.07	452	3	9,681	3.59	347
Indiana	267	9,458	4.72	447	112	12,570	4.00	503	2	12,819	3.33	427
Iowa	297	9,595	4.66	447	428	12,529	4.03	505	13	10,643	4.09	436
Kansas	98	8,778	4.58	402	113	12,602	3.78	476	2	14,163	3.04	431
Kentucky	164	10,064	4.73	476	121	11,059	3.99	441	1	15,550	3.15	490
Louisiana	1,222	9,103	4.33	394	130	11,364	3.60	409	7	10,318	3.42	353
Maine	105	11,112	4.68	520	3	14,645	3.85	564	5	11,217	3.85	432
Maryland	42	8,448	4.70	397	36	12,668	3.94	499	2	8,949	4.02	360
Massachusetts	61	10,203	4.72	481	12	12,802	3.95	505	1	14,719	3.67	540
Michigan	339	11,132	4.78	532	68	13,291	3.88	516	3	8,816	3.87	341
Minnesota	544	9,588	4.87	467	294	12,725	3.91	497	11	12,841	3.67	471
Mississippi	631	9,329	4.46	416	22	9,719	3.88	377	---	---	---	---
Missouri	205	10,085	4.53	457	270	12,042	3.88	467	22	12,974	3.75	486
Montana	6	14,381	4.44	638	6	14,392	3.51	505	---	---	---	---
Nebraska	19	9,707	4.77	463	73	12,330	3.89	479	5	13,230	3.40	450
Nevada	55	11,726	4.56	535	4	13,175	3.65	482	1	11,646	3.29	383
New Hampshire	195	9,934	4.75	472	17	11,131	3.87	430	3	14,622	3.45	505
New Jersey	26	11,159	4.65	519	22	13,618	4.06	553	---	---	---	---
New Mexico	7	13,779	3.89	536	13	15,604	3.35	523	---	---	---	---
New York	514	10,213	4.67	477	79	13,947	4.02	561	2	12,308	3.56	438
North Carolina	351	10,482	4.55	477	57	13,006	3.88	504	1	18,630	3.40	634
North Dakota	92	8,642	4.64	401	54	13,032	3.86	503	2	8,953	3.37	302
Ohio	454	10,390	5.04	523	120	12,152	4.09	498	7	9,846	4.30	423
Oklahoma	184	8,385	4.79	401	150	11,549	3.78	436	11	13,751	3.57	491
Oregon	2,718	10,027	4.89	490	201	12,917	4.08	527	9	11,507	3.97	457
Pennsylvania	429	10,391	4.91	511	61	13,519	3.95	534	9	11,038	3.84	424
Puerto Rico	8	7,697	3.79	292	208	11,101	3.17	352	1	13,680	2.29	313
Rhode Island	2	10,447	4.56	476	---	---	---	---	---	---	---	---
South Carolina	772	9,299	4.69	436	23	12,642	3.89	492	1	13,275	4.55	604
South Dakota	2	9,702	5.21	506	67	12,165	4.02	489	---	---	---	---
Tennessee	682	9,462	4.63	438	278	12,351	3.85	476	2	12,647	4.23	535
Texas	896	9,794	4.61	451	285	13,059	3.80	496	---	---	---	---
Utah	50	10,275	4.84	497	26	14,144	3.97	562	1	16,458	3.94	649
Vermont	1,302	10,108	4.71	476	39	14,666	3.80	558	4	12,946	3.69	477
Virginia	114	10,592	4.45	472	96	12,499	3.80	475	1	11,890	3.92	466
Washington	747	11,452	5.01	573	73	13,740	4.19	575	6	16,077	4.07	654
West Virginia	45	10,478	4.58	480	6	11,786	4.13	486	---	---	---	---
Wisconsin	743	9,665	4.79	463	638	13,511	3.96	535	30	12,321	3.58	441
Wyoming	---	---	---	---	---	---	---	---	---	---	---	---
United States	23,809	10,347	4.78	495	5,717	12,915	3.87	500	204	12,271	3.69	452

[1] Dashes indicate no lactation records reported.

[2] Puerto Rican data are included in USDA national standardized lactation averages.

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